Walter's Model

Tuesday 4 27

P= D+ ke (E-D)

Where, P = Price of equity shares,

D = Initial Dividend Pershare (DPS).

E = Initial Ewining Por Sharo (EPS).

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of Metuhn.

Ke = Cost of Equity Capital on the nat of Metunn expected by the shorreboldors on the capitalisation

Illustration 1.

Calculate the prevailing market price of a share using Walter's model from the following information

₹4

Rate of return on investment	10%
Capitalisation rate	8%
Earning per Share	₹5

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Solution:

Dividend per Share

As per Walter's model, market price of a share (P) is given by,

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

where,
$$D = Dividend per share$$

$$r$$
 = The rate of return on investment

$$= 10\% = 0.10$$

$$K_e$$
 = Cost of equity capital or capitalisation rate

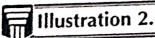
$$= 8\% = 0.08$$

and
$$E = Earnings per Share$$

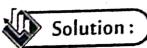
Now, putting the respective values in the model, we get,

$$P = \frac{\sqrt{3}4 + \frac{0.10}{0.08}(\sqrt{5} - \sqrt{4})}{0.08} = \sqrt{65.63}$$

So, the prevailing market price of a share using Walter's model is ₹ 65.63.



X Ltd. earns ₹ 6 per share having a capitalisation rate of 10 per cent and has a return on investment of 20%. According to Walter's model, what should be the price of the share at 25% dividend pay-out [CA Inter Nov, 2012]



According to Walter's model, market price of a share, P is given by,

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e}$$

where,

D = Dividend per share i.e., EPS x D/P Ratio or, ₹
$$6 \times 25\% = ₹ 1.50$$
.

$$r = \text{Rate of return on investment i.e., } 20\% \text{ or } 0.20.$$

$$K_e$$
 = Capitalisation rate i.e., 10% or 0.10.



E = Earnings per share i.e., ₹ 6.

Now, putting the values in the model, we get,

$$P = \frac{\underbrace{1.50 + \frac{0.20}{0.10}}(\underbrace{56 - \underbrace{1.50}})}{0.10}$$
= \brace 105

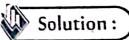
Illustration 3.

From the following information supplied to you, determine the theoretical market value of equity shares of a company as per Walter's Model:

Earnings of the company	₹ 5,00,000
Dividend paid	₹ 3,00,000
Number of shares outstanding	1,00,000
Price-earning ratio	8
Rate of return on investment	15%

Are you satisfied with the current dividend policy of the firm? If not, what should be the optimal dividend pay-out ratio in this case?

[C.U. B.Com (H), 2019][Almost similar to C.A. Inter, Nov 2014]



As per Walter's model, the market value of an equity share (P) is given by,

$$P = \frac{D + \frac{r}{K_e}(E - D)}{K_e} ,$$

where,

P = Market value of an equity share;

D = Dividend per share

$$= \frac{\text{Dividend paid}}{\text{Number of shares outstanding}}$$

$$=\frac{3,00,000}{1,00,000}=3;$$

r = Rate of return on investment

$$= 0.15;$$

$$K_e$$
 = Capitalisation rate

$$=\frac{1}{8}$$

$$= 0.125$$

and

E = Earnings per Share

$$= \frac{\text{Total Earnings}}{\text{Number of shares outstanding}}$$

$$= \frac{₹5,00,000}{1,00,000}$$

$$= ₹5.$$

Now, putting the values,

$$P = \frac{3 + \frac{0.15}{0.125} (3 - 3)}{0.125} = 3 + \frac{3.20}{0.125}$$

So, the theoretical market value of an equity share is ₹ 43.20.

But we are not satisfied with the current dividend policy. As the firm is a growth firm, where r (0-15) > K_e (0-125), the optimum dividend pay-out ratio should be zero.

This can be shown by considering following four situations.

$$D = zero$$

$$P = \frac{0 + \frac{0.15}{0.125} (₹5 - 0)}{0.125}$$

$$= ₹ 48$$

$$D = \sqrt[7]{1}$$

$$P = \frac{\sqrt[7]{1 + \frac{0.15}{0.125}} (\sqrt[7]{5} - \sqrt[7]{1})}{0.125}$$

$$= \sqrt[7]{46.40}$$

$$D = ₹2$$

$$P = \frac{₹2 + \frac{0.15}{0.125} (₹5 - ₹2)}{0.125}$$

$$= ₹44.80$$

$$D = ₹4$$

$$P = \frac{₹4 + \frac{0.15}{0.125} (₹5 - ₹4)}{0.125}$$

$$= ₹41.60$$

Thus, it is clear from above that the market price of an equity share is maximum (i.e., ₹ 48) when the dividend pay-out ratio becomes zero.

Illustration 4.

Following information relating to Jee Ltd. are given:

•	Profit after tax	·₹ 10,00,000
	Dividend pay-out ratio	₹ 50%
	Number of Equity Shares	50,000
	Cost of Equity	10%
	Rate of Return on Imvestment	12%

- (i) What would be the market value per share as per Walter's model?
- (ii) What is the optimum dividend pay-out ratio according to Walter's Model and Market value of equity share at that pay-out ratio? [C.A. Inter Nov., 2018]

[Almost similar to C.A. Nov, 2010]

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Market value per share (P) as per Walter's Model is given by,

$$p = \frac{D + \frac{r}{k_e}(E - D)}{k_e}$$

where,

(5)

D = Dividend per share (i.e., 50% of ₹ 10,00,000)/50,000 shares) or, ₹ 10 per share

r = Rate of return on investment i.e. 12% or 0.12

 K_e = Cost of equity i.e., 10% or 0.10

E = Earnings per share (i.e., ₹ 10,00,000/50,000 shares)or. ₹ 20

Now, putting the values,

$$P = \frac{\sqrt[3]{10} + \frac{0.12}{0.10} (\sqrt[3]{20} - \sqrt[3]{10})}{0.10}$$
$$= \sqrt[3]{220}$$

Detimum Dividend Pay-out (D/P) Ratio.

According to Walter's model when the return on investment (r) is more than the cost of capital (K_e) $_{\rm ie, r}$ (0·12) > $K_{\rm e}$ (0·10), the firm is considered as a growth firm. In that case, the price per share increases as the D/P ratio decreases. Hence, the optimum dividend pay-out ratio in this case should be Zero or Nil.

Therefore, at D/P ratio of zero, the market price per share (P) will be,

$$P = \frac{0 + \frac{0.12}{0.10}(20 - 0)}{0.10}$$
$$= ₹ 240$$

Illustration 5.

You are requested to find out the approximate dividend payment ratio as to have the share price at 56 by using Walter's Model, based on following information available for a company.

,	2 50 lakns
Net Profit .	80 lakhs
Outstanding 10% Preference Shares	5 lakhs
Number of Equity Shares	15%
Return on Investment	12%
4. (-24) [6.]	

Cost of Capital (after tax) (K_e) [C.A. Inter, May, 2017]



Solution: Calculation of Dividend Pay-out (D/P) Ratio

Dividend Per Share (DPS) D/P Ratio = Dividend 1 C | Earnings Per Share (EPS)

Where,

$$=\frac{342,00,000}{5.00,000}=38.40$$

DPS may be computed as follows:

$$P = \frac{D + \frac{r}{K_c}(E - D)}{K_c}$$
 [Using Walter's Model]

Where,

$$D = DPS$$

$$r = \text{Return on investment i.e., } 15\% \text{ or } 0.15$$

$$K_e$$
 = Cost of equity capital i.e., 12% or 0.12

Now, putting the values,

₹ 56 =
$$\frac{D + \frac{0.15}{0.12} (₹ 8.40 - D)}{0.12}$$

or,
$$56 \times 0.12 = D + 10.50 - 1.25D$$

or,
$$6.72 = 10.50 - 0.25 D$$

or,
$$0.25D = 10.50 - 6.72$$

$$\therefore D = \frac{3.78}{0.25} = ₹ 15.12$$

Now, D/P Ratio =
$$\frac{₹ 15.12}{₹ 8.40} \times 100$$

$$= 180\%$$

Illustration 6.

The following information is available in respect of a firm:

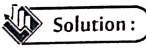
Capitalisation rate
$$(K_e) = 0.10$$

Earnings per share
$$(E) = ₹10$$

Assumed rate of return on investments (r): (i) 15%, (ii) 10% and (iii) 8%.

Show the effect of dividend policy on the market price of shares, using Walter's model. Assum Dividend Pay-out ratio (D/P Ratio): 0%, 25%, 50%, 75% and 100%.

Also state the optimum dividend pay-out ratio.



According to Walter's Model, market price of a share, P is given by,

Where,

D = Dividend per share,

r =Rate of return on investment,

 K_e = Capitalisation rate,

E = Earnings per share.

Situation 1:

When r = 15% or 0.15 and $K_c = 0.10$

 $(i.e., r > K_e \Rightarrow \text{Growth Firm})$

Value of Shares (Walter's Model) at different D/P Ratio:

$$D/P \text{ ratio} = 0\%$$
(i.e., Dividend per Share = zero)
$$0 + \frac{0.15}{2.12} (₹10-0)$$

$$P = \frac{0 + \frac{0 \cdot 15}{0 \cdot 10} (₹10 - 0)}{0 \cdot 10}$$
$$= ₹ 150$$

$$P = \frac{\sqrt[3]{5} + \frac{0.15}{0.10} (\sqrt[3]{10 - \sqrt[3]{5}})}{0.10}$$
$$= \sqrt[3]{125}$$

$$P = \frac{\sqrt[3]{10 + \frac{0.15}{0.10}} (\sqrt[3]{10 - \sqrt[3]{10}})}{0.10}$$

$$= \sqrt[3]{100}$$

$$P = \frac{?2.50 + \frac{0.15}{0.10} (?10 - ?2.50)}{0.10}$$

$$= ?137.50$$

$$P = \frac{?7.50 + \frac{0.15}{0.10} (?10 - ?7.50)}{0.10}$$
$$= ?112.50$$

Interpretation:

From the above calculation, it is quite clear that the value of shares (P) is inversely related to the D/P ratio. As the pay-out ratio increases, the market value of shares declines. This is so, because the firm is a growth firm (where $r > K_e$) and is able to earn a return on investments (r) exceeding the required rate of return (K_e). The market value of shares (₹ 150) is highest when D/P ratio is zero, i.e. the firm retains its entire earnings. When all earnings are distributed, i.e. D/P ratio is 100%, then its market value shows the lowest price (₹ 100).

So, the optimum pay-out ratio is zero.

Situation 2:

When r = 10% or 0.10 and $K_e = 0.10$

(i.e., $r = K_e \Rightarrow \text{Normal firm}$).

Value of shares (Walter's Model) at different D/P Ratio:

D/P ratio = 0%

(Dividend per Share = zero)
$$P = \frac{0 + \frac{0.10}{0.10} (₹10 - 0)}{0.10}$$
₹ 100

$$D/P \text{ ratio} = 0\%$$
(Dividend per Share = zero)
$$P = \frac{0 + \frac{0 \cdot 10}{0 \cdot 10} (\overline{<} 10 - 0)}{0 \cdot 10}$$

$$= \overline{<} 100$$

$$D/P \text{ ratio} = 50\%$$
(i.e., Dividend per Share = ₹ 5)
$$P = \frac{₹5 + \frac{0.10}{0.10} (₹10 - ₹5)}{0.10}$$

$$= ₹ 100$$

D/P ratio = 100%

(Dividend per Share = ₹ 10)

$$P = \frac{₹10 + \frac{0.10}{0.10} (₹10 - ₹10)}{0.10}$$
= ₹ 100

$$D/P \text{ ratio} = 25\%$$
(Dividend per Share = ₹ 2.50)
$$P = \frac{₹2.50 + \frac{0.10}{0.10} (₹10 - ₹2.5)}{0.10}$$

$$= ₹100$$

D/P ratio = 75%

(Dividend per Share = ₹ 7.50)

$$P = \frac{₹7.50 + \frac{0.10}{0.10} (₹10 - ₹7.50)}{0.10}$$
= ₹ 100

Interpretation :

Under this situation, when $r = K_e$, the market value of shares is constant irrespective of the D/P Ratio. It is a matter of indifference whether the firm retains whole of the profits or distribute dividends. So, there is no optimum dividend policy. But this is a hypothetical situation; r and K_e cannot be the same. Moreover, Walter concludes that dividend policy does matter as a variable in maximising share prices.

Situation 3:

When r = 8% or 0.08 and $K_r = 0.10$

(*i.e.*, $r < K_e \Rightarrow$ Declining Firm)

Value of shares (Walter's Model) at different D/P Ratio:

D/P ratio = 0%

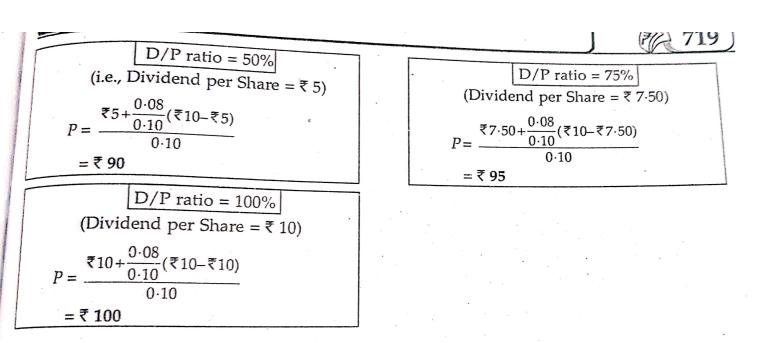
(Dividend per Share = zero)
$$P = \frac{0 + \frac{0.08}{0.10} (₹10 - 0)}{0.10}$$

$$= ₹80$$

D/P ratio = 25%

(Dividend per Share = ₹ 2.50)

$$P = \frac{₹2.50 + \frac{0.08}{0.10} (₹10 - ₹2.50)}{0.10}$$
= ₹ 85



Interpretation:

When the firm is a declining firm, where $r < K_e$, D/P ratio and the value of share are correlated positively. That is, when pay-out ratio increases, the market value of shares also increases and vice versa. The market value of share is maximum (₹ 100) when D/P ratio is 100%. So, under this situation, it is advisable to distribute the entire earnings as dividend to the shareholders.

Therefore, the optimum D/P Ratio is 100%.